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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,563	08/02/2001	Ichiro Amimori	012777-043	4585

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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/890,563	AMIMORI ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02/27/04*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Withdrawn Rejections

1. The 35 U.S.C. 103(a) rejections in the action mailed 07/31/03 have been withdrawn due to the amendment combined with the statement of narrowing definition of the structure filed 11/28/03. The narrowing definition specifies that the low refractive index layer coated on the hard coat layer maintains the concave-convex surface formed by incorporating the particles in the hard coat layer. Thus it is recommended that the limitation outlined above and present in new claim 11 be inserted into claim 1 for clarity.

New Rejections

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3, 5, 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oka et al. (previously cited US 5,747,152) in view of Altman (US 3,614,199).

Oka et al. has a film having a high total light transmittance of 93.5 % or more (95%) comprising, on a transparent support (transparent substrate film 3), a hard coat layer 4 with particles 5, and a low-refractive index layer 9 covering said hard coat layer 4 for an antireflection effect (column 45, lines 1-35). See Fig 9 on the next page. The total light transmittance is only 95 %, meaning that the haze value is 1 % or more (100 – 95 = 5). The low refractive index layer 9 has a refractive index value of 1.45 or less (not more than) (column 23, lines 1-15). The

antireflective effect is only possible if the antireflective layer has a lower refractive index than the layers it is covering, thus it would have been obvious to one of ordinary skill in the art to have an antireflective layer 9 with a lower refractive index than the transparent support 3.

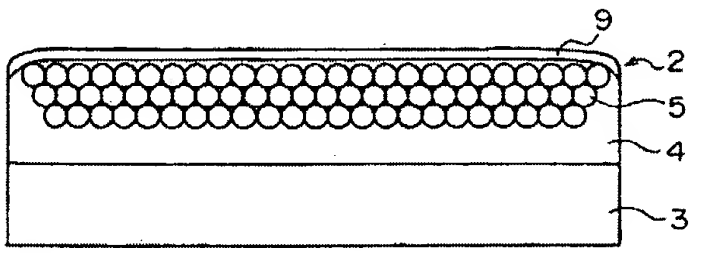


FIG. 9

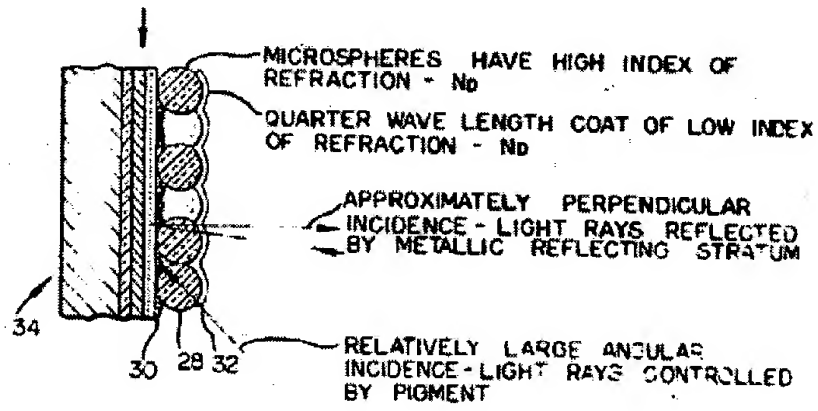
The low refractive index material is formed by incorporating a fluorine-containing macromolecular compound (polyvinylidene fluoride) and a fluorinated compound (trifluoroethylacrylate) into polyfunctional acrylate cross-linked by ionization radiation (ionizing radiation curing resin) (column 30, lines 35-45). Fluorine-containing compounds have very low surface energies and are well known lubricants and slip agents. Thus these compounds have a coefficient of kinetic friction of 0.20 or less. The hard coat layer 4 is formed from an ionization radiation cross-linked binder polymer (column 14, lines 60-70).

Oka et al. fails to teach that the particles 5 are of a particle size of 1.0 to 10 μm, and that they are larger than the thickness of the hard coat layer in order to provide a concave-convex matt surface.

Altman has a display (projection onto a viewing screen) (column 1, lines 10-20) which comprises a layer of refracting particles (microspheres) 28 coated with a thin layer of antireflection coating 32 (column 2, lines 15-25). The figure (abstract) is on the next page. The particles provide a concavo-convex matt surface, and are 1 to 50 μm (microns) in diameter (column 5, lines 55-60) which encompass the claimed range of 1 to 10 μm. The claimed range

for the relative difference in average particle diameter and binder thickness of 0.5 to 5.0 μm is within the realm of routine experimentation in the absence of a clear demonstration of unexpected results.

The layer of antireflection coating 32 has a low index of refraction and maintains the concave-convex matt surface. The particles are depicted as having only one size in the figure, which implies monodispersity, or having a particle size distribution of 0.1 or less (claims 2, 7).



Altman teaches that the particles (microspheres) each serve as a lens to focus all light incident upon it at a point which is adjacent to the apex of its inner surface, the resulting rays diverging in an amount which is controlled by the index of refraction of the particles (column 6, lines 1-5). Therefore it would have been obvious to one of ordinary skill in the art to have used larger particles of 1 to 10 μm in size which are larger than the thickness of the hard coat layer in place of the ultrafine particles in the invention of Oka et al. in order to obtain a concave-convex matt surface which provides the desired lens control of light rays.

Oka et al. teaches that the film is used for surfaces of polarizing plates in liquid crystal displays (column 2, lines 45-65). Fig. 14 on the next page shows two polarizing plates comprising polarizing layers 13 provided on both sides of a liquid crystal cell 15. The film 12 may be laminated on both sides of the polarizing layer (element 13), taking the place of layer 14

(column 25, lines 50-60). Thus it follows that the polarizing plate having a high transmittance and matt property as modified by Altman may also be provided at the back light side, the matted layer being disposed toward the back light side.

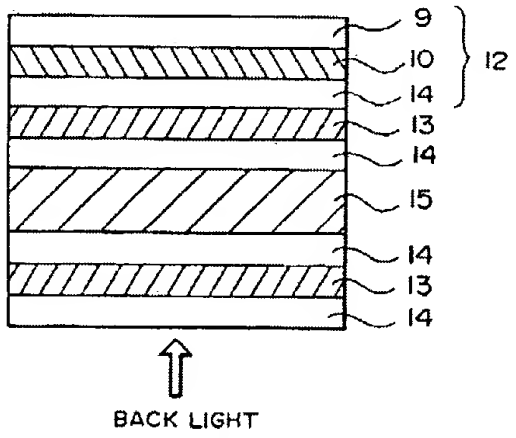


FIG. 14

4. Claims 4, 6, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oka et al. in view of Altman as applied to claims 1-3, 5, 7-12 above, and further in view of Palmquist (US 2,354,049).

Oka et al. has been discussed above and teaches a film having a high transmittance comprising, on a transparent support, a hard coat binder layer having incorporated therein particles, and a low refractive index layer having a refractive index of 1.45 or less and covering said hard layer, wherein the low refractive index layer is composed of a fluorine containing compound being cross-linked with a refractive index of 1.45 or less and an inherent coefficient of kinetic friction of 0.15 or less.

Altman has been discussed above and teaches monodisperse transparent fine particles of particle size distribution of 0.2 or less in terms of coefficient of variation, and which have an average particle size larger than the average thickness of the binder layer. In addition, Altman teaches that the particles which each serve as a lens (column 6, lines 1-5) are made of glass

(column 2, lines 60-65), but fails to disclose that the glass particles have a Moh's scale hardness of less than 7, or that the density of particles is in a range of 100 to 5000 particles/m^2.

Palmquist teaches a transparent support 13 (spacing film), laminated with a transparent hard binder coat 14 in which a layer of particles (small transparent spheres 15) is partially embedded so that the outer portions of the particles (spheres) are exposed to provide a multiplicity of convex lens elements (column 2b, lines 50-60). The density of the particles is several hundred per square inch (2b, lines 70-75). Thus the claimed density range of 100 to 5000 particles/m^2 is within the realm of routine experimentation.

Palmquist teaches that the transparent particles (spheres) may be made of glass or methyl methacrylate polymer (column 2b, lines 65-75). Polymers are much softer and easier to scratch relative to the inorganic materials for which the Moh's scale of hardness was developed. Thus polymers have a Moh's hardness scale of less than 7.

Palmquist thus demonstrates the equivalence of inorganic glass and methyl methacrylate polymer resin in their use as lens particle materials, wherein the methyl methacrylate polymer resin has a Moh's hardness scale of less than 7. Therefore it would have been obvious to one of ordinary skill in the art to have used transparent particles composed of a resin having a Moh's scale of hardness of less than 7 as the particles in the invention of Oka et al. when modified by Altman in order to provide a concave-convex surface for the lens control of light rays.

Response to Arguments

5. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 9:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH
Sow-Fun Hon
02/27/04

/Harold Pyon/
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SUPERVISORY PATENT EXAMINER
1772
3/5/04